OPERATING SYSTEMS LABORATORY

IV Semester: CSE / IT								
Course Code	**Category**	**Hours / Week**			**Credits**	**Maximum Marks**		
ACS106	**Core**	**L**	**T**	**P**	**C**	**CIA**	**SEE**	**Total**
		-	-	3	2	30	70	100
Contact Classes: Nil	**Tutorial Classes: Nil**	**Practical Classes: 45**				**Total Classes: 45**		

OBJECTIVES:
The **course should enable the students to:**
I. Understand the basic principles of Scheduling algorithms.
II. Apply the page replacement algorithms.
III. Understand the file allocation strategies.
IV. Evaluate the bankers algorithm.
V. Understand the memory management techniques.

COURSE LEARNING OUTCOMES (CLOs):
The students should enable to:
1. Understand the concepts of different scheduling algorithms
2. Demonstrate the concept of scheduling the process with the shortest burst time to be process first.
3. Understand the Priority Scheduling algorithm used for both pre-emptive and non-pre-emptive scheduling of tasks in operating systems.
4. Demonstrate the replacing the page with page replacement algorithms in memory management in operating systems
5. Determine the importance of different file allocation strategies.
6. Understand the concepts of Bankers algorithm for the purpose of deadlock avoidance.
7. Determine the procedure for deadlock prevention using Bankers algorithm.
8. Understand the basic concepts of MVT memory management techniques.
9. Understand the basic concepts of MFT memory management techniques.
10. Determine the concepts of file organization techniques.
11. Understand the importance of two level directories.
12. Determine the concepts of paging techniques of memory management.

LIST OF EXPERIMENTS

Week-1	**CPU SCHEDULING ALGORITHMS**

Write a program to simulate the FCFS and SJF non-preemptive CPU Scheduling algorithms to find turnaround time and waiting time.

Week-2	**CPU SCHEDULING ALGORITHMS**

Write a program to simulate the Round Robin and Priority CPU Scheduling algorithms to find turnaround time and waiting time.

Week-3	**PAGE REPLACEMENT ALGORITHMS**

Write a program to simulate FIFO page replacement algorithm.

Week-4	**PAGE REPLACEMENT ALGORITHMS**

Write a program to simulate LRU and LFU page replacement algorithms.	
Week-5	**FILE ALLOCATION STRATEGIES**
Write a program to simulate the Sequential file allocation strategies.	
Week-6	**BANKER ALGORITHMS**
Write a program to simulate Bankers algorithm for the purpose of deadlock avoidance.	
Week-7	**BANKER ALGORITHMS**
Write a program to simulate Bankers algorithm for the purpose of deadlock Prevention.	
Week-8	**MEMORY MANAGEMENT TECHNIQUES**
Write a program to simulate the MVT memory management techniques.	
Week-9	**MEMORY MANAGEMENT TECHNIQUES**
Write a program to simulate the MFT memory management techniques.	
Week-10	**FILE ORGANIZATION TECHNIQUES**
Write a program to simulate the Single level directory file organization techniques.	
WeeK-11	**FILE ORGANIZATION TECHNIQUES**
Write a program to simulate the Two level directory file organization techniques.	
Week-12	**PAGING TECHNIQUES**
Write a program to Simulate paging technique of memory management.	

TEXT BOOK:

1. Abraham Silberschatz, Peter B. Galvin, Greg Gagne, "Operating System Principles", Wiley Student Edition, 8th Edition, 2010.

REFERENCE BOOK:

1. Andrew S Tanenbaum, "Modern Operating Systems", PHI, 3rd Edition, 2007.